

Appl. No. 10/809,268
Amdt. Dated September 16, 2008
Reply to Office Action of June 17, 2007

Attorney Docket No. 81707.0193
Customer No. 26021

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A fuel cell assembly, which has a housing defining an electricity generation/combustion chamber, and electricity generation/combustion means disposed within said housing, and in which a fuel gas and an oxygen-containing gas are supplied to said electricity generation/combustion means, and a combustion gas formed within said electricity generation/combustion chamber is discharged from said electricity generation/combustion chamber,

wherein a heat exchanger having a first channel and a second channel is disposed on the inner side of at least one wall of said housing,

said combustion gas is discharged from an interior of said electricity generation/combustion chamber through said first channel of said heat exchanger, and

one of said oxygen-containing gas and said fuel gas is supplied to said electricity generation/combustion means through said second channel of said heat exchanger, and

wherein reforming means is disposed within said electricity generation/combustion chamber,

said fuel gas is supplied to said electricity generation/combustion means through said reforming means, and

said oxygen-containing gas is supplied to said electricity generation/combustion chamber through said second channel.

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2. (Original) The fuel cell assembly according to claim 1, wherein
said first channel and said second channel in said heat exchanger are
superposed in a thickness direction of said surface, and

said first channel and said second channel are opposed channels
extending zigzag.

3. (Original) The fuel cell assembly according to claim 1, wherein
said housing lies opposite flat side surfaces extending substantially
vertically, and

said heat exchanger is flat plate-shaped and is disposed on each of said
opposite side surfaces.

4. (Original) The fuel cell assembly according to claim 1, wherein
there are disposed a lower gas chamber located in a lower end portion
of said housing, an upper gas chamber located in an upper end portion at said
housing, and a communication gas chamber extending in an up-and-down direction
within said housing to bring said upper gas chamber and said lower gas chamber
into communication,

said second channel has an inflow port disposed at a lower end at said
heat exchanger, and an outflow port disposed at an upper end of said heat
exchanger and leading to said upper gas chamber, and

one of said oxygen-containing gas and said fuel gas is flowed into said
second channel through said inflow port, and is supplied from said second channel
to said electricity generation/combustion means through said upper gas chamber,
said communication gas chamber, and said lower gas chamber.

5. (Canceled)

6. (Currently Amended) A The fuel cell assembly, which has a housing
defining an electricity generation/combustion chamber, and electricity

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generation/combustion means disposed within said housing, and in which a fuel gas and an oxygen-containing gas are supplied to said electricity generation/combustion means, and a combustion gas formed within said electricity generation/combustion chamber is discharged from said electricity generation/combustion chamber.

wherein a heat exchanger having a first channel and a second channel is disposed on the inner side of at least one wall of said housing,

said combustion gas is discharged from an interior of said electricity generation/combustion chamber through said first channel of said heat exchanger, and

one of said oxygen-containing gas and said fuel gas is supplied to said electricity generation/combustion means through said second channel of said heat exchanger according to claim 1, wherein

a plurality of electricity generation units are arranged in parallel within said housing,

said electricity generation/combustion means includes a cell stack composed of a plurality of cells,

each of said electricity generation units includes said cell stack, a fuel gas case defining a fuel gas chamber, a reforming case, an unrefrmed gas supply pipe connected to said reforming case, and a fuel gas feed pipe connecting said reforming; case and said fuel gas case,

said cells off said cell stack are arranged on one surface of said fuel gas case,

said fuel gas within said fuel gas case is supplied to said cells, and

said oxygen-containing gas is supplied, through said second channel of said heat exchanger.

7. (Original) The fuel cell assembly according to claim 6, wherein said plurality of cells are disposed upright on an upper surface of said fuel gas case, and
said reforming case is placed above said cell stack.
8. (Original) The fuel cell assembly according to claim 6,
wherein in each of said electricity generation units, said fuel gas case is in a slenderly extending rectangular parallelopipedal shape, and
said cells are arranged in line in a longitudinal direction of said fuel gas case.
9. (Original) The fuel cell assembly according to claim 6,
wherein in each of said electricity generation units,
said reforming case slenderly extends along said fuel gas case above said cell stack,
said unreformed gas supply pipe is connected to one end portion of said reforming case, and
said fuel gas feed pipe connects said reforming case and said fuel gas case at other end portion of said reforming case.
10. (Currently Amended) A The fuel cell assembly, which has a housing defining an electricity generation/combustion chamber, and electricity generation/combustion means disposed within said housing, and in which a fuel gas and an oxygen-containing gas are supplied to said electricity generation/combustion means, and a combustion gas formed within said electricity generation/combustion chamber is discharged from said electricity generation/combustion chamber,
wherein a heat exchanger having a first channel and a second channel is disposed on the inner side of at least one wall of said housing,

said combustion gas is discharged from an interior of said electricity generation/combustion chamber through said first channel of said heat exchanger, and

one of said oxygen-containing gas and said fuel gas is supplied to said electricity generation/combustion means through said second channel of said heat exchanger according to claim 1, wherein

 said electricity generation/combustion means includes a plurality of cell stacks,

 a first gas case supplied with one of said oxygen-containing gas and said fuel gas is disposed within said housing,

 said first gas case has a hollow-shaped manifold portion, and a plurality of hollow-shaped ejection portions protruding front one-side flat surface of said manifold portion substantially perpendicularly to said one-side flat surface,

 said ejection portions are arranged with spacing in a first direction on said one-side flat surface,

 an ejection hole is formed in at least one surface of each of said ejection portions, and

 each of said cell stacks is placed between the adjacent ejection portions.

11. (Original) The fuel cell, assembly according to claim 10, wherein said manifold portion is placed substantially horizontally, with said one-side flat surface being directed upwards.

12. (Original) The fuel cell assembly according to claim 10, wherein said ejection hole is in a form of a slit parallel to said one-side flat surface and extending in a second direction perpendicular to said first direction.

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13. (Original) The fuel cell assembly according to claim 10, wherein
a plurality of second gas cases at a hollow rectangular parallelopipedal
shape placed on said one-side flat surface of said manifold portion between the
adjacent section portions of said fuel gas case and extending in said second direction
are disposed within said housing,
the other of said oxygen-containing gas and said fuel gas is supplied to
said second gas cases, and
each of said cell stacks is placed on each of said second gas cases.

14. (Original) The fuel cell assembly according to claim 1, further
comprising
an upper gas chamber disposed in an upper portion of said housing,
and
a plurality of gas introduction members hanging down from said upper
gas chamber, and
wherein one of said oxygen-containing gas and said fuel gas is supplied
through said upper gas chamber and said gas introduction members.

15. (Original) The fuel cell assembly according to claim 14, wherein
said electricity generation/combustion means includes a plurality of
cell stacks each composed of a plurality of cells,
said cell stacks are arranged in parallel with spacing in a horizontal
direction, and
said gas introduction members are pipes hanging down between said
cell stacks and having lower ends open.

16. (Withdrawn) An electricity generation unit comprising
a fuel gas case defining a fuel gas chamber;

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a cell stack composed of a plurality of cells arranged on one surface of said fuel gas case;

a reforming case;

an unreformed gas supply pipe connected to said reforming case; and
a fuel gas feed pipe connecting said reforming case and said fuel gas case, and

wherein a fuel gas within said fuel gas case is supplied to said cells.

17. (Withdrawn) The electricity generation unit according to claim 16,
wherein

said plurality of cells are disposed upright on an upper surface of said fuel gas case, and

said reforming case is placed above said cell stack.

18. (Withdrawn) The electricity generation unit according to claim 16,
wherein

said fuel gas case is in a slenderly extending rectangular parallelopipedal shape, and

said cells are arranged in line in a longitudinal direction of said fuel gas case.

19. (Withdrawn) The electricity generation unit according to claim 16,
wherein;

said reforming case slenderly extends along said fuel gas case above said cell stack,

said unreformed gas supply pipe is connected to one end portion or said reforming case, and

said fuel gas feed pipe connects said reforming case and said fuel gas case at other end portion of said reforming case.

20. (Original) A fuel cell assembly Comprising:

a housing defining an electricity generation/combustion chamber; and a plurality of electricity generation units arranged in parallel within said electricity generation/combustion chamber, and

wherein each of said electricity generation units comprises a fuel gas case defining a fuel gas chamber, a cell stack composed of a plurality of cells arranged on one surface of said fuel gas case, a reforming case, an unreformed gas supply pipe connected to said reforming case, and a fuel gas feed pipe connecting said reforming case and said fuel gas case, and

a fuel gas within said fuel gas case is supplied to said cells.

21. (Original) The fuel cell assembly according to claim 20, wherein in each of said electricity generation units,

said plurality of cells are disposed upright on an upper surface of said fuel gas case, and

said reforming case is placed above said cell stack.

22. (Original) The fuel cell assembly according to claim 20, wherein in each of said electricity generation units,

said fuel gas case is in a slenderly extending rectangular parallelopipedal shape, and

said cells are arranged in line in a longitudinal direction of said fuel gas case.

23. (Original) The fuel cell assembly according to claim 20, wherein in each of said electricity generation units,

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said reforming case slenderly extends along said fuel gas case above said cell stack,

said unreformed gas supply pipe is connected to one end portion of said reforming case, and

said fuel gas feed pipe connects said reforming case and said fuel gas case at other end portion of said reforming case.

24. (Original) A fuel cell assembly, which has a housing defining an electricity generation/combustion chamber, and

Electricity generation/combustion means disposed within said housing, and in which said electricity generation/combustion means includes a plurality of cell stacks, a fuel gas and an oxygen-containing gas are supplied to said electricity generation/combustion means, and a combustion gas formed within said electricity generation/combustion chamber is discharged from said electricity generation/combustion chamber,

wherein a first gas case supplied with one of said oxygen-containing gas and said fuel gas is disposed within said housing,

said first gas case has a hollow-shaped manifold portion; and a plurality of hollow-shaped ejection portions protruding from one-side flat surface of said manifold portion substantially perpendicularly to said one-side flat surface,

said ejection portions are arranged with spacing in a first direction on said one-side flat surface,

an ejection hole is formed in at least one surface of each of said ejection portions, and

each of said cell stacks is placed between the adjacent ejection portions.

25 (Original) The fuel cell assembly according to claim 24, wherein

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..... said manifold portion is placed substantially horizontally, with said one-side flat surface being directed upwards.

26. (Original) The fuel cell assembly according to claim 24, wherein
said ejection hole is in a form of a slit parallel to said one-side flat
surface and extending in a second direction perpendicular to said first direction.

27 (Original) The fuel cell assembly according to claim 24, wherein
a plurality at second gas cases at a hollow rectangular parallelopipedal
shape placed on said one-side flat surface of said manifold portion between the
adjacent ejection portions of said first gas case and extending in said second
direction are disposed within said housing,

the other of said oxygen-containing gas and said fuel gas is supplied to
said second gas cases, and

each of said cell stacks is placed on each at said second gas cases.